



InterDigital Communications Corporation
781 Third Avenue
King of Prussia, PA 19406-1409

February 26, 1996

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, D.C. 20554

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Re: InterDigital Communications Corporation
Comments in WT Docket No. 96-6

DOCKET FILE COPY ORIGINAL

Dear Mr. Caton:

Transmitted herewith are an original and 10 copies of the comments of InterDigital Communications Corporation in the above referenced proceeding.

Please direct any inquiries regarding this matter to the undersigned.

Sincerely,

Brian G. Kiernan
Vice President

BGK:bdw

Enclosures

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)
)
Amendment of the Commission's Rules)
To Permit Flexible Service Offerings)
in the Commercial Mobile Radio Services)

WT Docket No.

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COMMENTS OF INTERDIGITAL COMMUNICATIONS CORP.

DOCKET FILE COPY ORIGINAL

I. INTRODUCTION

InterDigital Communications Corporation ("InterDigital") respectfully submits these comments in the above-captioned proceeding. InterDigital is a wireless technology manufacturer that has developed an advanced spectrum efficient digital radio system which operates in the U.S. under current Basic Exchange Telecommunications Radio Service (BETRS) rules.¹ This system provides fixed wireless local loops between telephone central offices and customer premises, primarily in rural areas.

InterDigital's advanced digital radio system called the UltraPhone®, is based on time division multiple access (TDMA) techniques which allow multiple users to simultaneously share a single radio channel.

In addition, InterDigital is conducting a code division multiple access (CDMA) development program to provide a fixed wireless local loop (WLL) product which combines high-quality voice with mobility. This product development is based on InterDigital's proprietary broadband CDMA. In the U.S., this technology forms the basis for one of the approved standards adopted by the PCS industry. It is called wideband CDMA and incorporates high quality voice, data and bandwidth on-demand.

Having undertaken dual technology developments to address both rural and urban wireless local loop applications throughout the world, InterDigital is uniquely positioned to comment on wireless local loop service offerings, particularly in rural areas, of commercial mobile radio service (CMRS) providers.

¹ 47 C.F.R. Section 22.600.

II. DISCUSSION

In the Notice of Proposed Rule Making ("Notice") issued in the above-captioned proceeding, the Commission proposes to increase the number of local exchange competitors by permitting CMRS providers to offer, inter alia, fixed wireless local loop services.

InterDigital applauds the Commission's proposal. However, increasing the number of potential providers of fixed wireless local loop service will not assure that basic telephone service, offered via wireless technology, will be available in rural locations.

This is because wireless providers understand that the primary market for wireless services exists in the highly populated urban areas, not the sparsely populated rural areas. In recognition of this reality, wireless systems have been optimized for the mobile, high-capacity urban markets. Rural wireless systems, integrated into the telephone system to provide basic telephone service, require a different approach: BETRS.

The only way to assure improved basic telephone service in rural areas is to provide additional spectrum to BETRS. The need for additional BETRS spectrum for basic telephone service in rural America is still at a crisis level. The additional flexibility offered CMRS licensees will neither alleviate that shortage nor provide additional wireless service in rural areas.

A. CMRS OPERATORS ARE FOCUSED ON URBAN NOT RURAL APPLICATIONS.

In the "Notice," the Commission requests information on the extent to which the three CMRS providers: cellular, SMR and PCS will provide fixed services.² In response to that question it should be recognized that there is a large disparity between urban and rural wireless applications.

The primary differences are the distance between the central exchange and the customer and the density of subscribers. The distance in rural applications is often well in excess of 20 miles. Urban wireless technologies such as PCS are technically unable to provide service at such distances. This, coupled with the low subscriber density in rural areas, makes the rural subscriber market economically unattractive to wireless service providers.

In urban areas, the CMRS providers can use the flexibility afforded by the FCC to provide a full range of fixed services to include basic telephone service. However, most of the mainline digital cellular, PCS and SMR technologies do not support the voice quality or data requirements demanded of wireless technologies intended to replace a copper loop. There are some PCS technologies, like PACS, that have a wireline equivalent voice quality. However, few licensees have expressed interest in PACS and there is no interest in rural applications.

Once the voice quality of digital cellular, SMR and PCS improves, basic business and residential telephone service will become a standard offering of all wireless urban CMRS carriers and offer a net benefit to all consumers. However, this is not the case now nor in the foreseeable future for rural basic telephone service.

² Notice at 10,11.

In rural areas the need for wireless loops has been well established for over a decade. BETRS applications have been provided by local exchange companies since 1986. However, there has never been adequate spectrum allocated to BETRS.

The justification for adequate spectrum for BETRS is a matter of record. It has been before the FCC for nearly three years. On November 9, 1992, a Petition for Rule Making ("Petition") asking for access, on a shared basis, to additional spectrum for BETRS was filed by the original BETRS petitioners.

This Petition was jointly filed by the United States Telephone Association ("USTA"), the National Telephone Cooperative Association ("NCTA"), the Organization for the Protection and Advancement of Small Telephone Companies ("OPASTCO"), the National Rural Telephone Association ("NRTA") and the Rural Electrification Administration ("REA") (collectively "Petitioners").³

In that Petition, the Petitioners argued for co-primary sharing between BETRS and the Air-to-Ground Radiotelephone Service of 12 Air-to-Ground ("ATG") Radiotelephone channels. These channels are immediately adjacent to the twenty-six (26) 450 MHZ channels that BETRS currently shares - with other Part 22 licensees (predominately paging).

The proposal put forth in the Petition establishes a geographical separation between BETRS and ATG systems sufficient to insure that no interference to either BETRS or current ATG operations would occur.

The Commission has taken no action on that petition for over three years. The lack of Commission action on this petition may be partially blamed on the mistaken assumption that cellular spectrum could be used for basic telephone service in rural areas. That same assumption, that CMRS providers may fill the requirement for wireless loops (including rural loops), is reflected in this proceeding. The actual experience of the cellular providers over the last 12 years proves otherwise.

B. THE USE OF CELLULAR SPECTRUM FOR RURAL WIRELESS LOOPS HAS NOT MATERIALIZED.

In CC Docket 95-115,⁴ the Commission requested comments on programs to increase subscribership and usage of the public switched network. In that proceeding, the Commission asked for information on wireless technologies as surrogates for traditional wire loops in remote areas: "In particular, we are interested in the extent to which fixed cellular service is being used for this purpose."⁵

Most commentors supported BETRS as the technology of choice in extending telephone service to rural areas.

³ Public Notice Report No. 1923 (RM-8159, released Jan. 8, 1993).

⁴ Amendment of the Commission's Rules and Policies to Increase Subscribership and Usage of the Public Switched Network, FCC 95- 281, released July 20, 1995

⁵ Notice at 17.

For example, the GSA, a non industry participant in the proceeding, "...recommends that the Commission expedite the consideration of the provision of additional BETRS spectrum in order to facilitate the extension of telephone service to unserved areas."⁶

InterDigital's response to the Petition for additional BETRS spectrum seems particularly relevant to the issue of rural wireless loops:

Over 7 years experience with BETRS has shown that cellular systems are not providing basic telephone service in rural areas. This experience provides ample evidence that rural cellular is not a remedy for the spectrum shortage faced by BETRS. In the original BETRS proceeding, several participants provided comments to the Commission concerning the provision of BETRS by cellular. They predicted that cellular carriers would not offer BETRS service nor would telephone companies lease spectrum from cellular carriers for that purpose. Time has proven them right.⁷

Frankly, cellular has not provided basic telephone service in rural areas because it is not cost effective to build systems where there are few people (and cars) and the service quality would not permit it to be a "wireline replacement". Similarly, 50 channels of SMR spectrum has been set aside for BETRS since the late 1980's, yet no BETRS SMR systems have been deployed.

After 12 years, cellular radio systems are still not providing basic rural telephone service. There is no reason to believe that SMR operators or PCS operators will act differently.

C. SERVICE QUALITY OF MOST CMRS EQUIPMENT WILL NOT SUPPORT BASIC TELEPHONE SERVICE.

Unlike mobile callers, fixed telephone subscribers generate substantial traffic loads and will not tolerate excessive call blockage. They further expect full telephone quality voice, data and special services, just as if they were connected to a copper loop. These services are not currently available from most cellular and SMR equipment.

Some PCS technologies have the capability for better service quality. However, the configurations that provide the higher quality are specifically designed for the highly concentrated, short range, low powered applications characteristic of dense urban environments. They are not designed for rural use.

Three of the standards approved by the PCS industry (PACS, Wideband CDMA and Hybrid CDMA/TDMA) are based on technologies that will support high quality basic telephone service. Unfortunately, they are not the predominant technologies being deployed in PCS markets. PACS and Wideband CDMA can both provide excellent quality voice loops. Neither technology is currently planned for widespread deployment. The hybrid technology is a third possibility, but little is known about its ultimate deployment beyond a single market.

⁶ Comments of GSA at 9.

⁷ Comments of InterDigital at 7.

All of these technologies are intended for low-powered urban PCS architectures. In contrast, rural loops require longer ranges, higher power and wide area coverage. As a result, rural local loop economics, which combines few customers distributed over great distances, prohibits the successful deployment of even the highest quality PCS systems.

III. CONCLUSION

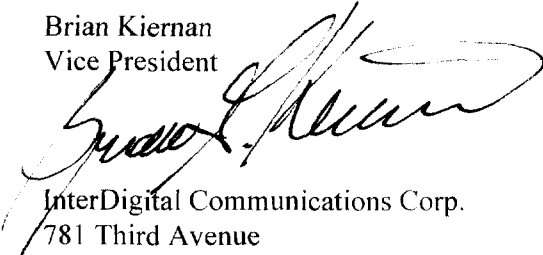
CMRS providers should be given the flexibility to provide fixed services to include basic telephone service. The reality, however, is that this will do little to alleviate the problem in rural areas.

The Commission should not allow this increased flexibility for CMRS to cloud the pressing issue of inadequate spectrum for BETRS.

Increased competition is a logical step to improve the telecommunications offering to the public, but without direct action by the Commission to allow BETRS providers access to additional spectrum, the state of rural telecommunications will not improve.

Respectfully submitted,

Brian Kiernan
Vice President



InterDigital Communications Corp.
781 Third Avenue
King of Prussia, PA 19406

February 23, 1996